

Notice of Allowability

Application No.

09/689,952

Examiner

Chih-Min Kam

Applicant(s)

PELLETIER ET AL.

Art Unit

1653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/4/05.
2. ☒ The allowed claim(s) is/are 26,29,30,53,57-59,63,64 and 74.
3. ☒ The drawings filed on 04 February 2005 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 12/24/02; 1/26/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 20050407
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

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An **Examiner's Amendment** to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Matthew Beaudet on April 6, 2005.

Examiner's Amendments to the Specification:

Please replace the paragraph after the subtitle "RELATED APPLICATIONS" at page 1 with the following paragraph:

This application is a continuation-in-part of U.S. Patent Application No. 09/470,512, filed December 22, 1999, now U. S. Patent 6,376,652, which is a CIP of U.S. Patent Application No. 09/407,804, filed September 28, 1999, and claims the benefit of U.S. Provisional Application No. 60/110,992, filed December 3, 1998.

Please replace the term "Fig. 7 shows" at page 12, line 8 with the term "Figs. 7A-7C show".

Please replace the term "Fig. 8 shows" at page 12, line 14 with the term "Figs. 8A-8D show".

Please replace the term "Fig. 11 shows" at page 14, line 1 with the term "Figs. 11A and 11B show".

Please replace the term "Fig. 12 shows" at page 14, line 5 with the term "Figs. 12A-12E show".

Please replace the term "Fig. 14 shows" at page 15, line 1 with the term "Figs. 14A-14C show".

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Please replace the term "Fig. 16 shows" at page 15, line 19 with the term "Figs. 16A and 16 B show".

Please replace the term "at 70 °C" at page 88, line 19 with the term "at -70 °C".

Please replace the term "http://www.genome.ou.edu/staph.html" at page 89, line 19 with the term "www.genome.ou.edu/staph.html".

Examiner's Amendments to the Claims:

Cancel claims 67-71.

Claims 26, 53, 59 and 74 have been amended as follows:

26. (Currently amended) A method for inhibiting bacterial growth, comprising contacting bacteria *in vitro* with an amount of an inhibitor effective to reduce the a DnaI activity of a polypeptide comprising the amino acid sequence of SEQ ID NO: 16, wherein said inhibitor inhibits bacterial growth.

53. (Currently amended) A method for inhibiting bacterial growth, comprising contacting bacteria *in vitro* with an effective amount of an inhibitor that decreases the a DnaI activity of a polypeptide selected from the group consisting of:

- a polypeptide comprising the amino acid sequence of SEQ ID NO: 2;
 - a polypeptide comprising the amino acid sequence of SEQ ID NO: 16; and
 - a polypeptide comprising the amino acid sequence of SEQ ID NO: 18,
- wherein said inhibitor inhibits bacterial growth.

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59. (Currently Amended) A method for inhibiting bacterial growth, comprising contacting a bacteria *in vitro* with an amount of an inhibitor effective to decrease the activity of a polypeptide selected from the group consisting of:

- a DnaI polypeptide comprising at least 75% 50% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 2;
- a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 2;
- a DnaI polypeptide comprising at least 75% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 16;
- a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 16;
- a DnaI polypeptide comprising at least 75% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 18;
- a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 18; and
- a DnaI polypeptide comprising fragments comprising an amino acid sequence having at least 50 contiguous amino acids from of the amino acid of SEQ ID NO: 2; SEQ ID NO: 16; and SEQ ID NO: 18;

wherein said polypeptide has an activity selected from the group consisting of:

- a) directly interacting with bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof in a manner that results in at least 10 fold reduction of ³H-thymidine incorporation in a bacterial DNA replication assay relative to ³H-

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thymidine incorporation in an assay lacking bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof;

b) directly interacting with bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof in a manner that results in at least 10% inhibition of plasmid replication by bacteriophage 77 ORF 104 protein or a DnaI-binding fragment in a plasmid replication assay; and

c) aiding in the loading of *S. aureus* DnaC helicase onto replicative primosomes, wherein said inhibitor inhibits bacterial growth.

74. (Currently Amended) A method for inhibiting bacterial DNA synthesis, comprising contacting a bacterium *in vitro* with an effective amount of an inhibitor which decreases the activity of a polypeptide selected from the group consisting of:

- a DnaI polypeptide comprising at least 75% 50% identity ~~over 50 or more amino acids~~ to the amino acid sequence of SEQ IID NO: 2;
- ~~a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 2;~~
- ~~a DnaI polypeptide comprising at least 75% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 16;~~
- ~~a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 16;~~
- ~~a DnaI polypeptide comprising at least 75% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 18;~~

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- ~~— a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 18; and~~
- a DnaI polypeptide comprising fragments comprising an amino acid sequence having at least 50 contiguous amino acids from of the amino acid of SEQ ID NO: 2; SEQ ID NO: 16; and SEQ ID NO: 18;

wherein said polypeptide has an activity selected from the group consisting of:

- a) directly interacting with bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof in a manner that results in at least 10 fold reduction of ³H-thymidine incorporation in a bacterial DNA replication assay relative to ³H-thymidine incorporation in an assay lacking bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof;
- b) directly interacting with bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof in a manner that results in at least 10% inhibition of plasmid replication by bacteriophage 77 ORF 104 protein or a DnaI-binding fragment in a plasmid replication assay; and
- c) aiding in the loading of *S. aureus* DnaC helicase onto replicative primosomes,

wherein said inhibitor inhibits bacterial DNA synthesis.

The following is an **Examiner's Statement of Reasons for Allowance**: The following reference appears to be the closest art to the claimed invention. Pelletier et al. (U.S. Patent 6,376,652) teach a DnaI polypeptide comprising SEQ ID NO:2, at least 50% identity to the amino acid sequence of SEQ IID NO:2, or a fragment of SEQ IID NO:2, where the DnaI polypeptide has specific DnaI activity. The instant application, which is a CIP of U.S. Patent 6,376,652, claims a method of inhibiting bacterial growth or inhibiting bacterial DNA synthesis in vitro by contacting the bacteria with a DnaI polypeptide such as a polypeptide comprising SEQ ID NO:2, SEQ ID NO:16 or 18 (a fragment of SEQ ID NO:2), at least 50% identity to the amino acid sequence of SEQ IID NO:2, or a fragment of SEQ IID NO:2, which have the same

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scope as the products of the patent, thus the product of the patent and the method of the instant application are related as product and process of use, where the product claims have been allowed in the patent. Therefore, the claims are allowable over the art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Min Kam whose telephone number is (571) 272-0948. The examiner can normally be reached on 8.00-4:30, Mon-Fri.

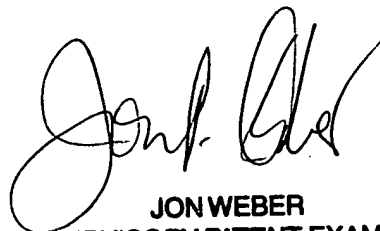
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached at 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chih-Min Kam, Ph. D. *CMK*
Patent Examiner

CMK

April 7, 2005


JON WEBER
SUPERVISORY PATENT EXAMINER